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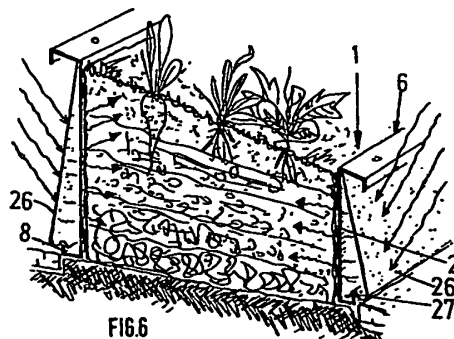
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(54) A frame for a raised garden bed

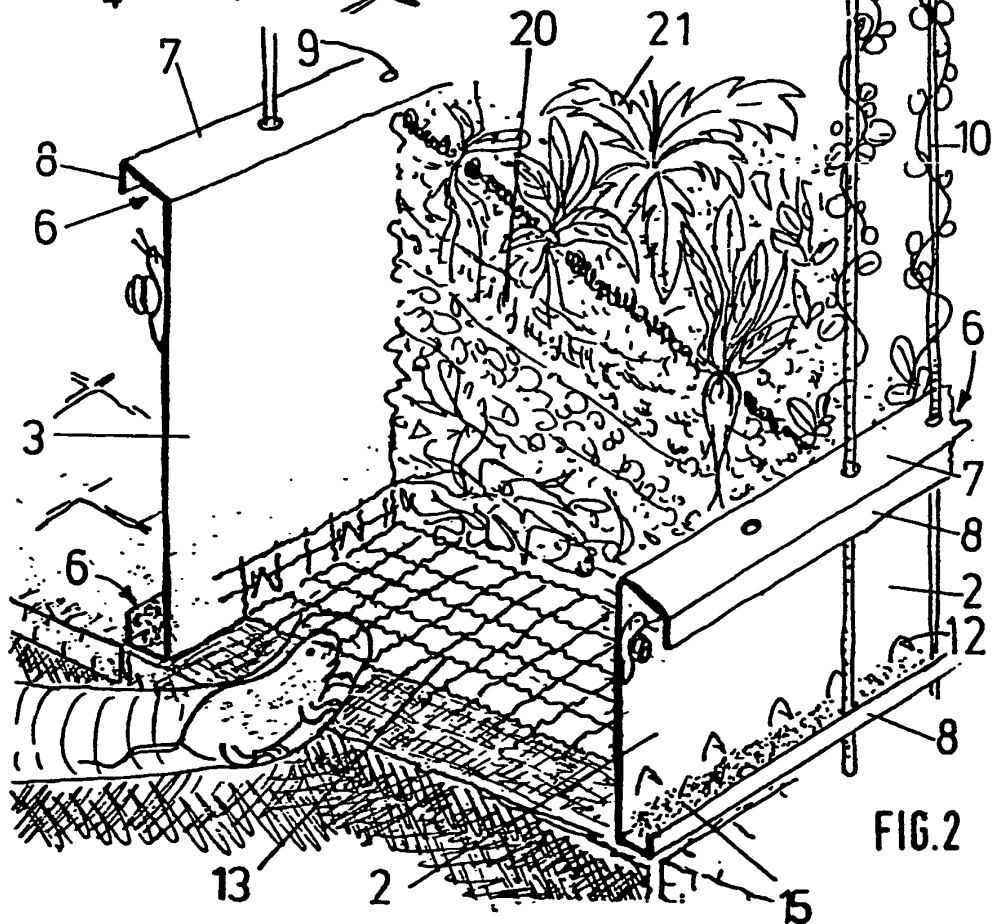
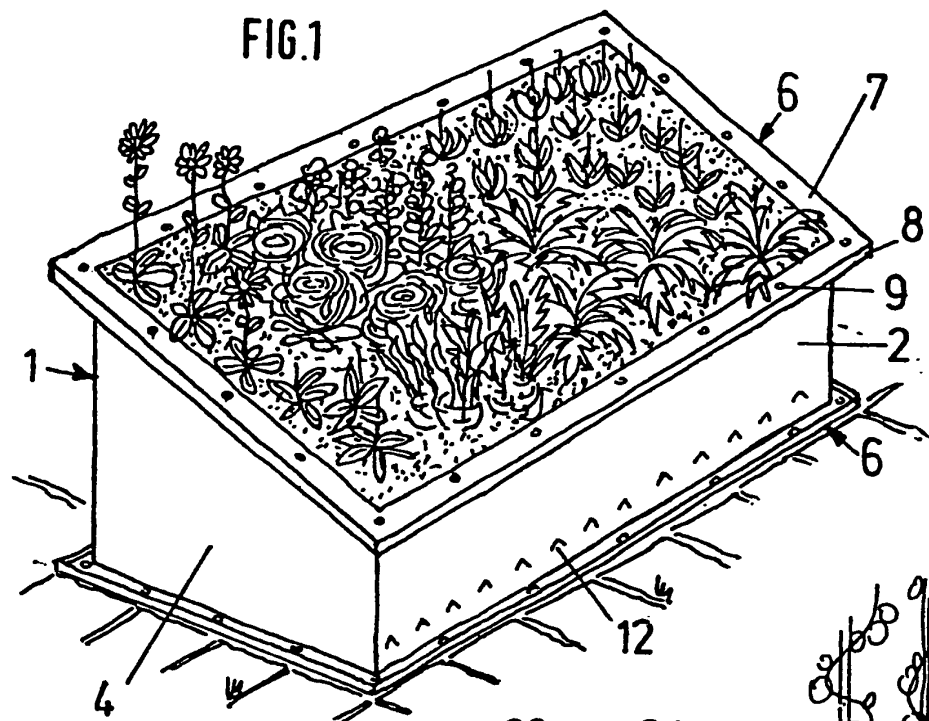
(57) A rectangular frame for a raised garden bed has front and rear longitudinal sidewalls (2) one of which is higher than the other, interconnected releasably by transverse sidewalls which taper accordingly. On the outside, each of these sidewalls includes a U-shaped profile section (6) whose open ends face each other. Spaced apertures are formed in the approximately horizontally protruding webs of the U-shaped profile sections, at least along the longitudinal sidewalls (2, 3). The apertures serve to receive rod-like supports (10) on which a roof-like cover may be disposed. A plate or foil of plastics (26) and permeable to thermal radiation is arranged releasably at the outside of the sidewalls and spaced from the same. A tight-mesh wire screen is hooked over tongues formed by embossment in the sidewalls near the lower edge thereof. The frame provides a raised garden bed with equal conditions of growth for all plants. The frame is easily positioned, and maintained, and may act as a solar collector.

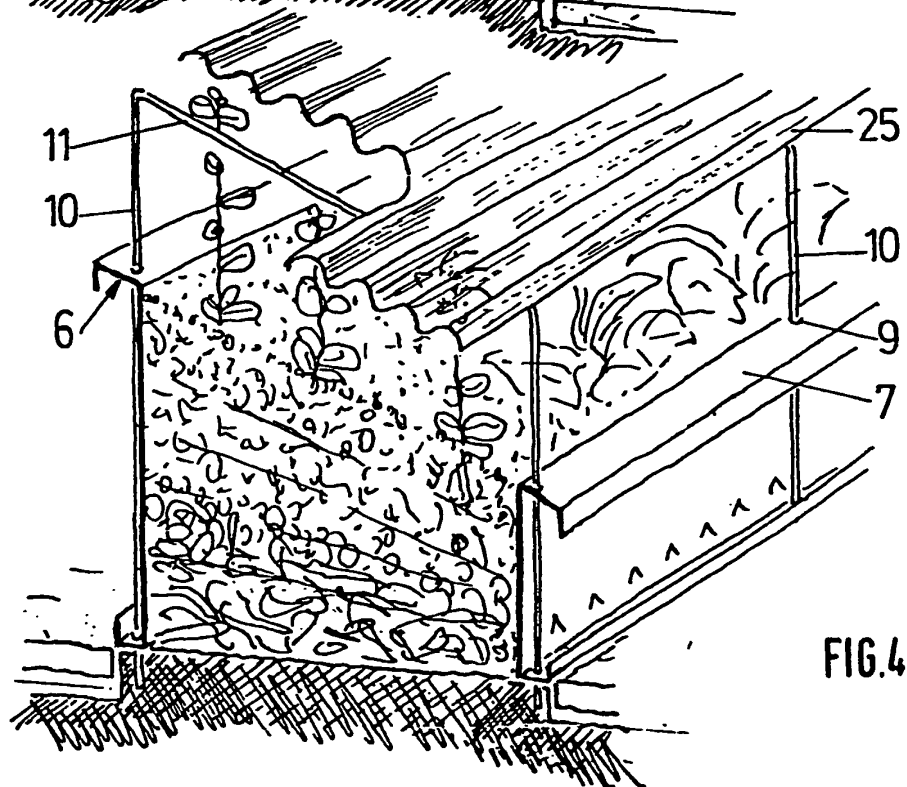
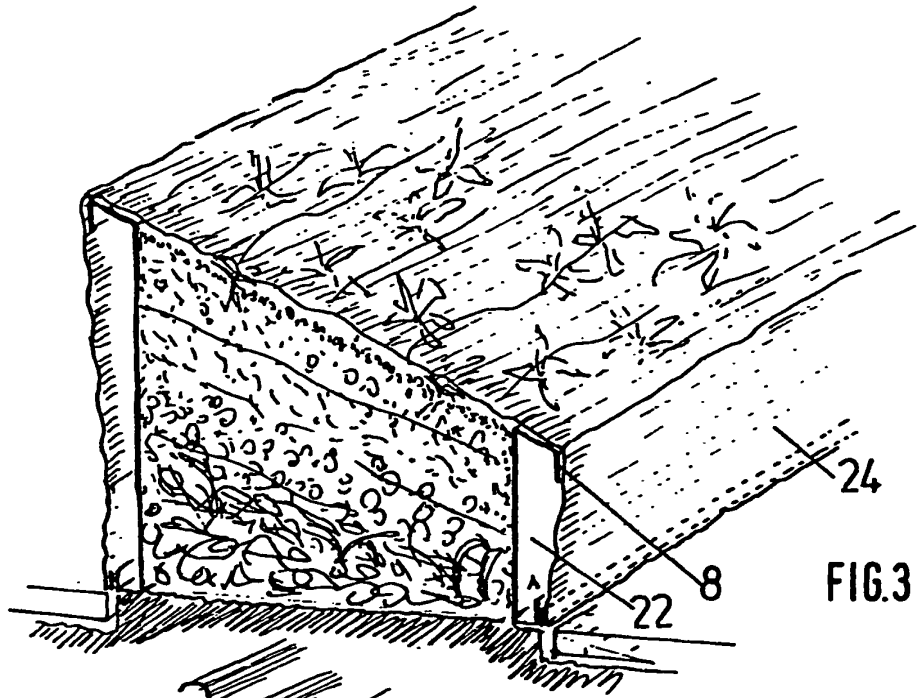


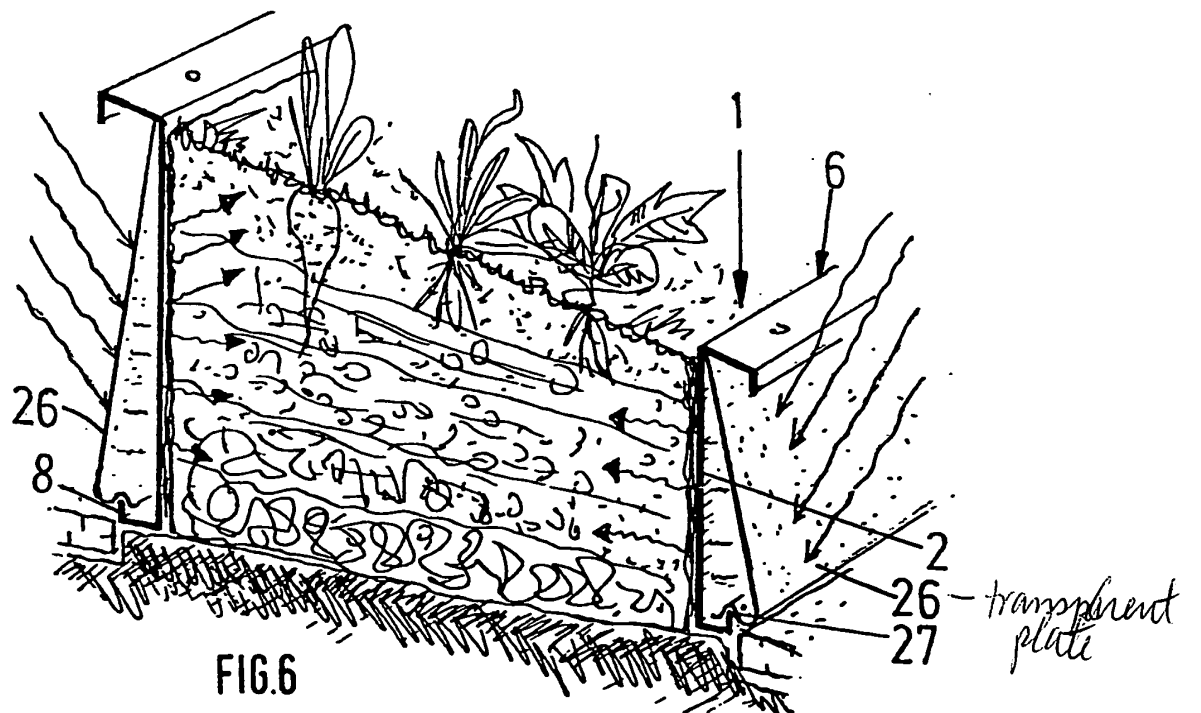
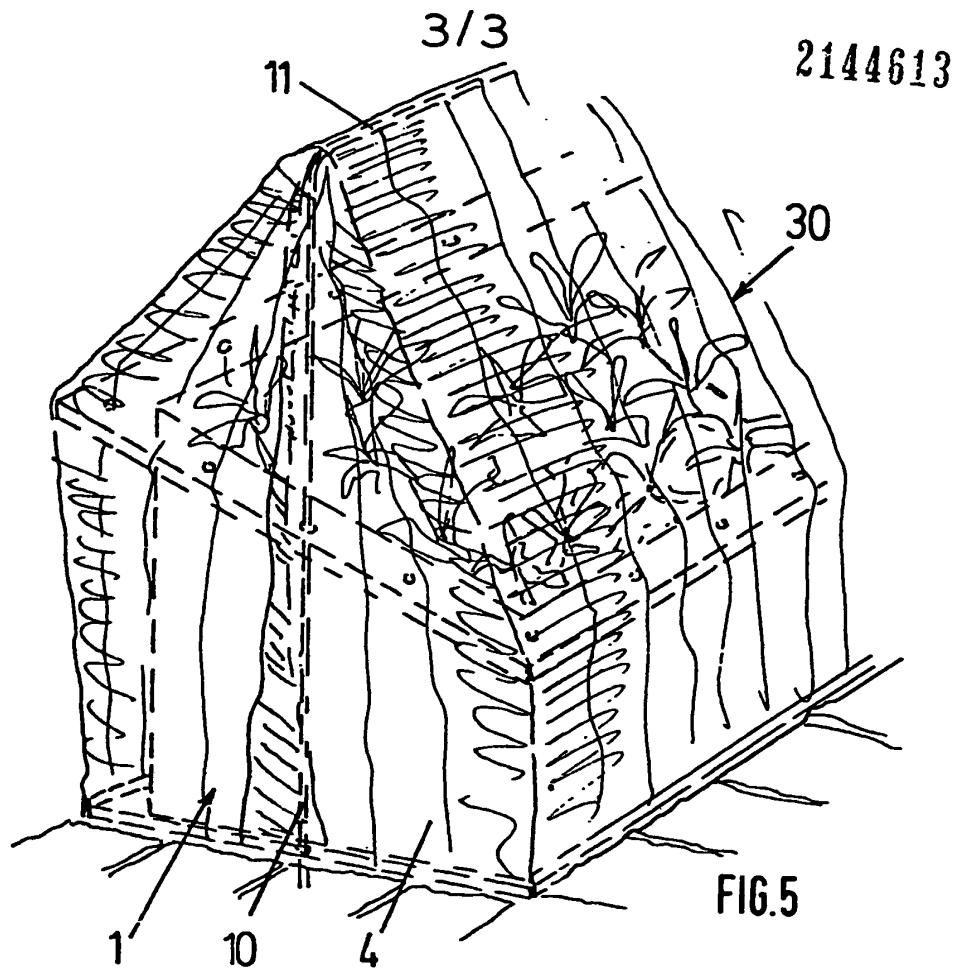
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FIG. 1







SPECIFICATION

A frame for a raised garden bed

5 This invention relates to a frame for a raised garden bed to be mounted on soil, comprising flat side-walls bent at an angle at the upper and lower edges and releasably connected to each other.

In particular, this invention relates to rectangular frames, where one longitudinal sidewall is higher than the other and the transverse sidewalls taper accordingly from the high to the low longitudinal sidewall.

Raised cultivations are a special form of cultivation which have been in existence ever since man has learned to plan gardening. In gardens, these are called raised garden beds. One known form of raised garden bed has the form of a semicylinder. When making such a raised garden bed, a rectangle of approximately 1.5 x 3 m is excavated to a depth of about 30 cm to start with. Then a multi-layer filling of coarse and ever finer materials is introduced concentrically about the imagined longitudinal axis of the cylinder.

According to instructions in books on gardening one begins filling in with very coarse parts of plants, e.g. wood, branches, sunflower stalks, etc., all of which are placed concentrically about the imagined longitudinal axis of the semicylinder. At the end a fine layer consisting of a mixture of humus and compost is placed on top. The finished raised garden bed is about 1.5 m wide and about 3 m long, and has a height of about 1.3 m.

For most gardeners the making of such a semicylinder—which is always shown perfect in the drawings contained in books on gardening—remains wishful thinking. However even if a particularly meticulous gardener should succeed in building a perfect semicylinder in the manner described, he or she will not be able to enjoy it for long, as there are a number of problems inherent in the construction. When planting the bed the relatively steep sidewalls of the semicylinder at the lower edge do not prevent amounts of the carefully heaped up mixture of humus and compost from rolling away to the side, perhaps onto a path. In this manner the bed becomes lower and flatter and loses its original shape more and more. The bed and the path will merge into one another.

It cannot be denied that the long roots of many plants do not grow toward the imagined middle of the cylinder in order to find there preferred nourishment in the rotting coarse material there. Rather, the situation is such that some plants have too much nourishment, and others too little.

It is another disadvantage of these raised garden beds that one side of the hill thus formed is remote from the sun and receives less direct irradiation. Moreover, initial excavation of the soil is tiresome. Further, it is difficult to cover the raised garden bed with a sheet or roof spaced from the soil so as to protect the bed from frost. It is also disadvantageous that the centre of this type of raised garden bed is a real playground for field mice and voles, the latter especially being attracted. In the winter the centre where the coarse material is located is a pleasantly warm and ventilated place, while the roots of the plants which remain in the bed offer an abundance of

nourishment.

Ordinary cold frames (DE-A1 26 05 076, US 2 573 084 A1) are placed on the ground, over a pit excavated from the ground containing compost and plant

material. The cold frame surrounds an air space above the pit. As a rule, the top of such a cold frame is inclined, and faces south so as to maximise the sunshine it receives, whereas the ground containing the plant material is absolutely horizontal and thus deprived of the most favourable action of the sun. However, this is not quite so bad with a cold frame which is partly filled with soil and is closed toward the top by a removable light hood (DE-U1 80 27 078), with the plants growing into the light hood. The walls of a cold frame are well insulated against cold. However it has been proved that the insulation of the walls causes a refrigerator effect, i.e. during the spring the sun hitting the walls cannot overcome the insulation of the walls to heat up the soil inside the cold frame. The soil inside the box at best can be warmed up slightly from the top.

It is, therefore, an object of the invention to provide a frame for a raised garden bed which avoids both differing conditions of nourishment and growth for the plants cultivated in the bed and also the refrigerator effect in the spring-time. It is also an object of the invention to provide a frame of the kind recited which will guarantee that the structure and functioning of the raised garden bed will be maintained over a number of years. Another object resides in preventing the entrance of vermin.

According to my invention, I provide a frame for a raised garden bed to be mounted on soil comprising flat sidewalls bent at an angle at their upper and lower edges and releasably connected to each other, the upper and lower edges of each sidewall being bent outwardly into sections of U-shaped profile, the open ends of the sections at the upper and lower edges facing each other, the sections incorporating webs projecting outwardly from the sidewalls, the webs including apertures serving to receive rod supports, hooks or pins for carrying a cover, a plate or foil permeable to thermal radiation being arranged releasably on the outside of the sidewalls, and spaced from the same, and a tight mesh wire screen being provided attached to the lower edges of at least two sidewalls.

The frame is preferably rectangular and has four sidewalls, the rear longitudinal sidewall being higher than the front longitudinal sidewall, with the two remaining transverse sidewalls tapering accordingly. The sidewalls are preferably of metal, and the plate or foil of plastics material. The screen is preferably attached by hooking the wire mesh over tongues formed by embossment close to the lower edge of the sidewalls. The rod supports or props may serve to take up the roof-like cover or wall members adapted to be attached releasably to the same.

The rectangular raised garden bed frame prevents the bed from creeping in the course of time although it is made above the garden level and without any excavation work. Moreover, it is no longer necessary to apply the individual layers of which the structure of the raised garden bed consists in concentric fashion with respect to a longitudinal axis. Rather, the layers may be placed one on top of the other as in a

multi-layer cake, and this can be done easily by an unskilled person. Contrary to the known cold frames and hot houses the raised garden bed frame is completely filled with material which is adapted to the conditions of growth of the plants. When the material has been given several days to settle, the filling is super-elevated a little so that a more or less planar surface will be obtained in the end. All plants at the surface of such a raised garden bed having the filling described are offered the same nourishment and the same conditions of growth down to the bottom. The water permeability is uniform over the entire cultivation surface, and any washing away of the fine layer toward the side is almost impossible. The rods could be retained by the frame of the bed alone. As they are held at the top and bottom by the U-shaped profile section they will always be erect and can be positioned without any effort by any inexperienced person in an optically pleasing fashion.

The special design of the sidewalls serves the purpose of permitting the climate inside the raised garden bed frame to be maintained at a favourable value, no matter what the season. To this end the releasably provided plates, which are permeable to heat radiation, are attached in the cold season, to provide a solar collector effect, and are removed in the warm season. Further, rods are provided to take up covering sheets which may be spread or taken off totally or in part as desired. Furthermore, fastening means are needed to hold and receive the same, and these are provided in a special form unless transparent covering holds which have a natural rigidity are used at the beginning, into which hoods the plants may grow. When the plates are removed, the U-shaped profile sections provided along the upper edge of the sidewalls often prevent molluscs, particularly snails from getting to the plants. When the plates are attached the snail barrier is not effective, but snails are not a problem in the cold season, so this does not matter. The provision of a profile section at the lower edge of the sidewalls permits the safe deposit of saw dust, ashes, lime, or any other substance destined to ward off molluscs. It is another advantage of the raised garden bed frame that the weeds growing around the same cannot readily proliferate into the bed. The frame is a clear limit toward the surroundings, so paths along the side always remain clean. Raspberries, for instance, are prevented from leaving the bed by way of subterranean runners, just as voles or moles are prevented from entering. A tight-mesh wire screen is sufficient protection against such animals as field mice and voles. The material of the raised garden bed is not introduced until after the tight-mesh wire screen has been applied over the corresponding hooks.

If the apertures or bores are not used for the rod-like supports, they are closed by plugs of plastic material or the like so that snails will not reach the bed through the bores. During the summer tomato growers will place rods, for example, in the apertures of the U-shaped profile sections to carry a desired protective roof against rain. The rods at the same time support the tomatoes. A melon or cactus grower will not use only the roof elements but also anchor wall members in the apertures so as to concentrate the greatest amount of heat. And if beans are planted, slim poles

will be applied for the beans to climb on.

It is provided in accordance with a modification of the invention that the carriers or supports taken up by the apertures of the longitudinal sidewalls are interconnected in pairs by roof supports extending parallel to the transverse sidewalls. In this manner sheets or roof-like covers may be applied easily. Such roof supports permit lower or higher protective covers to be applied easily against sunshine or cold or longer periods of rain and also against bird feeding.

The U-shaped profile section provided at the upper end of the side members conveniently has a web which is broader than that of the lower U-shaped profiled section. This not only makes for a barrier which is more difficult to be overcome by snails but also lets the upper U-shaped profile section act as a roof for the lower one so that even better protection is afforded for any material deposited there.

In early spring it is no problem to protect the raised garden bed from the cold by a sheet cover placed on the skeleton supports. The covering sheet may extend as far as the lower edge of the frame. In this manner not only the bed surface is heated by the incident sun rays but also the empty space between the sheet or foil and the frame which preferably is of dark color. Thus a solar collector effect is obtained. The hot air thus surrounding the raised garden bed also warms up those walls of the bed which are remote from the incident sunshine, therefore heating the bottom, too. Consequently both the walls and bottom as well as the contents of the containment are prevented from cooling off too quickly and becoming too cold at night. This is particularly desirable as the raised garden bed heaped up inside the frame is located above ground level. Preferably, the frame is given a dark color at the outside to ensure good heating of the void space between the frame and the cover plate or film.

The clean frame around the raised garden bed permits orderly, clean covering of the cultivation area, as compared to a bed which comprises all the unevenness of the surface of the ground.

As the surface of the bed is positioned at a higher level than the marginal zone of conventional raised garden beds, it is easier to cultivate the bed because one does not have to bend down so far. If several raised garden beds are located one behind the other, one can sit on the edge of one bed while working on the other. Work thus becomes till easier, an advantage especially for older gardeners.

There is no difficulty in providing each of several beds with a different soil mixture adapted to the respective plants, and the bed soil will not readily blend with soil of the surroundings.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a view at an angle of a frame for a raised garden bed;

Figure 2 is a perspective cross sectional view of the frame shown in Figure 1;

Figure 3 is a cross-sectional oblique view of the frame to which a cover sheet is applied;

Figure 4 is a perspective cross sectional view of a frame for a raised garden bed, including supports to receive a flat roof-like cover;

Figure 5 is an oblique perspective view of part of a frame for a garden bed, including a gable roof-like cover; and

Figure 6 is an oblique perspective view of part of a frame for a raised garden bed, including transparent plates disposed spaced from the sidewalls.

The frame 1 for a raised garden bed, as shown in the drawings, comprises a lower front longitudinal sidewall 2, a higher rear longitudinal sidewall 3, and two transverse sidewalls 4, all together forming a frame for a raised garden bed of rectangular cross section. The four sidewalls are connected releasably at the corners by means not illustrated, particularly by screws.

At its upper edge, each sidewall 2, 3, 4 has a U-shaped profile section 6 whose open end faces in a downward direction, while an upwardly open U-shaped profile section 6 is provided at the lower edge. If the sidewalls 2, 3 and 4 are made of sheet metal, the U-shaped profile sections may be formed by double bending at an angle. If other materials are used which cannot be bent, separate U-shaped profile sections 6 may be provided. Each section 6 includes an approximately horizontal transverse web 7. The webs 7 at the upper edge of the sidewalls are somewhat longer than the corresponding horizontal web 7 of each U-shaped profile section 6 at the lower edge of the sidewalls so that it may act as a roof and offer increased resistance to molluscs.

The approximately horizontal webs 7 of the U-shaped profile sections 6 at the upper and lower edges of the lateral members each pass over into an approximately vertical web 8 and are formed with spaced apart and vertically aligned apertures 9. As shown in Figure 2, rod-like props or supports 10 may be inserted into those apertures for plants to climb up.

Tongues 12 are formed along the lower edges of the longitudinal sidewalls 2 and 3; they serve to take up a tight-mesh wire screen 13 provided within the bottom opening of the frame 1. Such a wire mesh serves as protection against field mice and voles because they like to make their home in a raised garden bed with its peculiar structure.

A layer 15 of lime, ashes, or other substances may be filled into the empty space of the lower U-shaped profile section 6 as it will make it more difficult for vermin to enter.

In use, the frame for the raised garden bed is filled with layers 20 first of coarse and then of even finer material toward the top. In this raised garden bed various plants 21 will grow under exceptionally fine conditions of growth. The free surface area of the bed, and the sidewalls are covered so as to promote the collection of warmth, particularly during the colder season. In the case of the embodiment shown in Figure 3 this is achieved by a cover in the form of a transparent plastics foil 24 extending continuously over the sidewalls and the free cross section. Heat damping is obtained not only above the soil but also in the void space 22 between the sidewall and the plastics foil 24 spanning the same laterally.

The lateral covering of the sidewalls to create the void space 22 also may be embodied by panels or films of plastics arranged to the vertical webs 8 of the U-shaped sectional profiles 6. Conveniently, these are

disposed so as to the removable in order to avoid too much heating from the side during the warmer season and also so that the lower U-shaped profile section 6 may be filled with lime and the like.

The embodiment shown in Figure 4 has a cover which is effective on the top alone. To this end bows consisting each of two vertical rod supports 10 and one roof support 11, connecting the same in the apertures 9 of the laterally protruding webs 7 of the U-shaped profile sections 6. A corrugated plastics web 25 is placed on top as a guard against too much irradiation by sunshine and also as a protective means against rain. It is likewise possible to fix flat plastics panels or thicker sheets on the supports, the latter somewhat in the manner of awnings.

Figure 5 shows the frame spanned by a gable roof-like cover 30. In this case rod-like supports 10 are held in apertures 9 formed in the horizontal webs 7 of the upper and lower U-shaped profile sections 6 of the transverse sidewalls 4 and are connected to each other by a rooftop support 11'. In this manner a larger sheet of plastics may be spread like a tent over the rooftop support 11' and at least the upper U-shaped profile sections 6 of the longitudinal sidewalls 2 and 3. Specific side elements are arranged in the two front ends in front of the transverse sidewalls 4. This type of covering is convenient if higher plants grow with preference in the middle.

Figure 6 shows the frame 1 with transparent plates 26 permeable to thermal radiation placed obliquely in the space between the U-shaped profile sections 6 at the outside of the sidewalls and spaced from them. Here too the frame 1 acts as a solar collector. At their lower edge the plates 26 are bent inwardly, and provided with an undulation 27 straddling the upper edge of the outer vertical web 8 of the lower U-shaped profile section 6.

CLAIMS

1. A frame for a raised garden bed to be mounted on soil, comprising flat sidewalls bent at an angle at their upper and lower edges and releasably connected to each other, the upper and lower edges of each sidewall being bent outwardly into sections of U-shaped profile, the open ends of the sections at the upper and lower edges facing each other, the sections incorporating webs projecting outwardly from the sidewalls, the webs including apertures serving to receive rod supports, hooks or pins for carrying a cover, a plate or foil permeable to thermal radiation being arranged releasably on the outside of the sidewalls, and spaced from the same, and a tight mesh wire screen being provided attached to the lower edges of at least two sidewalls.

2. A frame for a raised garden bed as claimed in claim 1, in which the frame is rectangular, and has four sidewalls, the rear longitudinal sidewall being higher than the front longitudinal sidewall, and the two remaining transverse sidewalls tapering accordingly.

3. A frame for a raised garden bed as claimed in claim 1 or claim 2, in which the sidewalls are made of metal, and the plate or foil of plastics material.

4. A frame for a raised garden bed as claimed in any preceding claim, in which the supports received in the apertures of the longitudinal sidewalls are connected in pairs by roof supports parallel to the

transverse sidewalls.

5. A frame for a raised garden bed as claimed in any preceding claim in which the U-shaped section provided at the upper edge of the side-walls has a
5 broader web than the U-shaped section provided at the lower edge.

6. A frame for a raised garden bed as claimed in any preceding claim, in which the wire screen is hooked over tongues embossed in the sidewalls near
10 the lower edges thereof.

7. A frame for a raised garden bed substantially as described herein with reference to and as illustrated in Figures 1 and 2 of the accompanying drawings.

8. A frame for a raised garden bed substantially as described herein with reference to and as illustrated in
15 Figure 3 of the accompanying drawings.

9. A frame for a raised garden bed substantially as described herein with reference to and as illustrated in Figure 4 of the accompanying drawings.

20 10. A frame for a raised garden bed substantially as described herein with reference to and as illustrated in Figure 5 of the accompanying drawings.

11. A frame for a raised garden bed substantially as described herein with reference to and as illustrated
25 in Figure 6 of the accompanying drawings.